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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,386	09/04/2001	Paul Richard Phillips	JMYT-244US	4927
23122	7590	12/30/2003	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/857,386

Applicant(s)

PHILLIPS ET AL.

Examiner

BINH Q. TRAN

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-14 and 16-49 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

This office action is in response to the amendment filed October 20, 2003.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

***Claims 1, 3-14, 16-31, 33-36, 38-43, and 45-48 are rejected under 35 U.S.C. 102 (e) as being anticipated by Hsiao et al. (Hsiao) (Patent Number 5,891,409).***

Regarding claim 1, Hsiao discloses a process of treating internal combustion engine exhaust gas containing O<sub>2</sub>, NO<sub>x</sub>, unburnt hydrocarbon ("HC"), CO and soot, comprising:

i. catalytically oxidizing a substantial part of the HC;

Art Unit: 3748

ii. catalytically treating the product of step i to oxidize NO to NO<sub>2</sub>;

iii. collecting soot; and

iv. combusting the collected soot by reaction with the NO<sub>2</sub> and possibly any O<sub>2</sub> left over after steps i and ii (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claims 3, 16, and 19- 24, Hsiao further discloses a first catalyst (74) adapted to be fed with internal combustion engine (14) exhaust gas and effective to promote oxidation of HC therein; a second catalyst (78) adapted to be fed with the product of i and effective to promote oxidation of NO to NO<sub>2</sub>; and a filter (e.g. 82, 112) effective to collect soot and to retain it until combusted by said NO<sub>2</sub> and any O<sub>2</sub> left over after catalytically (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claims 4, and 17, Hsiao further discloses that the catalysts are honeycomb supported (See Figs. 1-9).

Regarding claims 5, and 18, Hsiao further discloses that the cell density of the honeycomb is in the range 100-900 per square inch. (e.g. See col. 9, lines 15-25)

Regarding claim 6, Hsiao further discloses that the HC is in gaseous form (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 7, Hsiao further discloses that the first oxidation is carried out close to the source of exhaust gas, whereby to obtain a maximum convenient operating temperature and reaction rate (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 8, Hsiao further discloses that the gas leaving step/catalyst i undergoes cooling and then enters step/catalyst ii (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 9, Hsiao further discloses the step of providing an increased amount of combustible upstream of a first catalyst for effecting step i for increasing the temperature at which step i operates (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 10, Hsiao further discloses the step of modifying engine settings to pass more HC and/or generate more CO (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 11, Hsiao further discloses that the a first catalyst for effecting step i has a very low light-off temperature for HC and CO oxidation (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 12, Hsiao further discloses that the HC is absorbed on the soot (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 13, Hsiao further discloses the step of removing NO<sub>x</sub> down stream of soot combustion (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claim 14, Hsiao further discloses the step of removing NO<sub>x</sub> uses a regenerable NO<sub>x</sub> absorber (e.g. 116) downstream of the collecting trap (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

Regarding claims 26-31, 33-36, 38-43, and 45-48, Hsiao further discloses that the catalyst comprises platinum group metal (See Figs. 1-9; col. 9, lines 36-67; cols. 10-12, lines 1-67; col. 13, lines 1-58).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 32, 37, 44, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsiao in view of design choice.***

Regarding claims 32, 37, 44, and 49, Hsiao discloses all the claimed limitation as discussed above except that the platinum group comprising from 10-150 g/ft<sup>3</sup> platinum.

Regarding the specific range of the platinum, it is the examiner's position that a range between 10-150 g/ft<sup>3</sup> platinum would have been an obvious matter of design choice well within the level of ordinary skill in the art, depending on variables such as mass flow rate of the exhaust gas, as well as the concentration of oxygen in the exhaust gas, properties of materials for making the catalyst, and the controlled temperature of the catalytic converter. Moreover, there is nothing in the record which establishes that the claimed parameters present a novel or unexpected result (See *In re Kuhle*, 562 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. *In re Dreyfus*, 22 CCPA (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 CCPA (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such

Art Unit: 3748

criticality. In re Swenson et al., 30 CCPA (Patents) 809, 132 F.2d 1020, 56 USPQ 372; In re Scherl, 33 CCPA (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. In re Sola, 22 CCPA (Patents) 1313, 77 F.2d 627, 25 USPQ 433; In re Normann et al., 32 CCPA (Patents) 1248, 150 F.2d 627, 66 USPQ 308; In re Irmscher, 32 CCPA (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136.

### ***Response to Arguments***

Applicant's arguments filed October 20, 2003 have been fully considered but they are not completely persuasive. ***Claims 1-49 are pending.***

Applicant's cooperation in correcting the informalities in the drawing and specification are appreciated. Applicant's cooperation in explaining the claims subject matter more specific to overcome the claim objections relating to indefinite claim language is also appreciated.

Art Unit: 3748

Applicant's arguments with respect to claims 1-49 have been considered but are moot in view of the new ground(s) of rejection as discussed above.

Applicant's amendment (Claims 1-49) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL See MPEP, 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

***Allowable Subject Matter***

Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone number for this group is (703) 746-4561.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

BT  
December 23, 2003

A handwritten signature in black ink, appearing to read 'Binh Tran', with a stylized flourish extending from the end.

Binh Tran  
Patent Examiner  
Art Unit 3748